

Claims

1. A system for providing exchange of messages and associated data across a plurality of communication network system entities for at least one communications network, comprising:

5 at least one distributed message broker connectable to the plurality of communication network system entities of at least one communication network, wherein the at least one message broker is configured to provide message processing between a plurality of system entities, wherein message processing includes at least one of: relaying and screening based on prioritization rules of at least one of customer classification, 10 associated service classification, and system entity classification applied to a message classification of one or more messages communicated over the at least one communications network between the plurality of system entities.

2. The system of claim 1 wherein the plurality of system entities includes at least one of: a transport association controller (TAC), association state manager (ASM), 15 other of the at least one message brokers, an integrated service controller (ISC), a service logic entity, and service management entities.

3. The system of claim 1 wherein the message classification comprises at least one of: message type (request, information, instruction), associated event in message payload, and level of support of connection or connectionless oriented message 20 transactions between system entities.

4. The system of claim 1 wherein the message broker is configured to relay the one or more messages to an appropriate destination based on at least one high-level name incorporated into the one or more messages.

5. The system of claim 1 wherein the message broker is configured to employ message delivery parameters which affect the manner of delivery for the one or more messages of a message classification between identified origination-destination endpoints.

5 6. The system of claim 5 wherein the message delivery parameters include at least one of: timers, queuing priority order, one or more levels of message delivery guarantees, ordering of sequential messages, integrity of message delivery, and message duplication handling.

7. The system of claim 6 wherein the message broker is configured to 10 perform the message relay and screening prioritization of the one or more messages of a message classification based on static message operation prioritization rules.

8. The system of claim 7 wherein the static message operation prioritization rules comprise at least one of: security policies, resource allocation arbitration, reactivity to communication network conditions to ensure performance levels, and relationship 15 definitions of associated messaging endpoints.

9 The system of claim 6 wherein the message broker is configured to perform dynamic prioritization for message relay and screening of the one or more messages of a message classification through communication with the system entities from which the one or more messages is generated or received.

20 10. The system of claim 1 wherein the message broker is further configured to provide:

discovery which allows a serving system entity to advertise capabilities and a client system entity to one or more methods associated with the serving system entity; and

transparency which enables both the serving and client system entities to

5 communicate without requiring knowledge of an addressable reference for every one of the system entities in the plurality of communications networks.

11. The system of claim 1 wherein the at least one message broker is further configured to operate in a plurality of message distribution modes which include at least one of: unicast, multicast, and broadcast methods to support messaging requirements.

10 12. The system of claim 1 wherein the message broker is configured to operate in a services layer within the plurality of communications networks so as to relay or screen messages with the at least one of: at least one system entity resident in a service layer and at least one system entity resident in a service control layer of the plurality of communications networks.

15 13. The system of claim of 12 wherein the message broker is configured to communicate with at least one of: at least one service logic entity and one or more message brokers each within the service layer.

14. The system of claim 12 wherein the message broker is configured to communicate with at least one of: at least one integrated service controller and one or 20 more message brokers, each within the service control layer.

15. The system of claim 1 wherein the at least one the message broker is configured to operate in a services control layer within the plurality of communications networks and is configured to relay or screen the one or more messages through the

services control layer between at least one of: the plurality of system entities located in at least one service layer of the at least one communications network and the plurality of system entities located in at least one transport control layer of the at least one communications network.

5 16. The system of claim 15 wherein the at least one message broker is further configured to exchange the one or more messages with at least one integrated service controller in the service control layer of the at least one communications network.

10 17. The system of claim 1 wherein the at least one message broker is configured to operate in a transport control layer within the plurality of communications networks and is configured to relay or screen the one or more messages through the transport control layer between at least one of: the plurality of system entities located in at least one service control layer of the at least one communications network and the plurality of system entities located in at least one transport layer of the at least one communications network.

15 18. The system of claim 17 wherein the at least one message broker is further configured to exchange the one or more messages with at least one transport association controller in the transport control layer of the at least one communications network.

19. The system of claim 1 wherein the at least one message broker is further configured to operate in at least one of: a services layer, a service control layer, and a transport control layer wherein the at least one message broker provides for inter-message distributions across a plurality of communications domains.

20. The system of claim 19 wherein the at least one message broker is further configured to provide message translation for the one or more messages communicated between the plurality of communications domains.

21. The system of claim 20 wherein the message translation includes message translation schemes which are modular and configurable from a provisioning management system.

22. The system of claim 19 wherein the at least one message broker is further configured to provide for authentication and authorization for the one or more messages exchanged between the plurality of communications domains.

10 23. The system of claim 19 wherein the at least one message broker is further configured to provide message tunneling for the one or more messages exchanged between the plurality of communications domains.

24. The system of claim 19 wherein the at least one message broker is further configured to provide non-repudiation of message relay and screening in order to provide 15 proof of message exchange transaction.

25. A method for providing exchange of messages and associated data across a plurality of communication network system entities for at least one communications network, comprising the steps of:

configuring at least one message broker to establish connections with a plurality

5 of communication network system entities of at least one communications networks; and

receiving and processing one or more messages from the system entities

wherein the processing includes at least one of: relaying and screening based on

prioritization rules of at least one of customer classification, associated service

classification, and system entity classification applied to a message classification of one

10 or more messages communicated over the at least one communications network between

the plurality of system entities.

26. The method of claim 25 wherein the plurality of system entities includes at

least one of: a transport association controller (TAC), association state manager (ASM),

other of the at least one message brokers, an integrated service controller (ISC), a service

15 logic entity, and service management entities.

27. The method of claim 25 wherein the message classification comprises at

least one of: message type (request, information, instruction), associated event in message

payload, and level of support of connection or connectionless oriented message

transactions between system entities.

20 28. The method of claim 25 further comprising the step of relaying the one or

more messages to an appropriate destination based on at least one high-level name

incorporated into the one or more messages.

29. The method of claim 25 further comprising the step of employing message delivery parameters which affect the manner of delivery for the one or more messages of a message classification between identified origination-destination endpoints.

30. The method of claim 29 wherein the message delivery parameters include
5 at least one of: timers, queuing priority order, one or more levels of message delivery guarantees, ordering of sequential messages, integrity of message delivery, and message duplication handling.

31. The method of claim 30 further comprising the step of performing the message relay and screening prioritization of the one or more messages of a message
10 classification based on static message operation prioritization rules.

32. The method of claim 31 wherein the static message operation prioritization rules comprise at least one of: security policies, resource allocation arbitration, reactivity to communication network conditions to ensure performance levels, and relationship definitions of associated messaging endpoints.

15 33. The method of claim 30 further comprising the step of performing dynamic prioritization for message relay and screening of the one or more messages of a message classification through communication with the system entities from which the one or more messages is generated or received.

34. The method of claim 25 further comprising the step of:
20 providing discovery which allows a serving system entity to advertise capabilities and a client system entity to one or more methods associated with the serving system entity; and

providing transparency which enables both the serving and client system entities to communicate without requiring knowledge of an addressable reference for every one of the system entities in the plurality of communications networks.

35. The method of claim 25 further comprising the step of operating in a plurality of message distribution modes which include at least one of: unicast, multicast, 5 and broadcast methods to support messaging requirements.

36. The method of claim 25 wherein the message broker is configured to operate in a services layer within the plurality of communications networks so as to relay or screen messages with the at least one of: at least one system entity resident in a 10 service layer and at least one system entity resident in a service control layer of the plurality of communications networks.

37. The method of claim of 36 further comprising the step of communicating with at least one of: at least one service logic entity and one or more message brokers each within the service layer.

15 38. The method of claim 36 further comprising the step of communicating with at least one of: at least one integrated service controller and one or more message brokers, each within the service control layer.

39. The method of claim 25 wherein the at least one the message broker is configured to operate in a services control layer within the plurality of communications networks and is configured to relay or screen the one or more messages through the 20 services control layer between at least one of: the plurality of system entities located in at least one service layer of the at least one communications network and the plurality of

system entities located in at least one transport control layer of the at least one communications network.

40. The method of claim 39 further comprising the step of exchanging the one or more messages with at least one integrated service controller in the service control 5 layer of the at least one communications network.

41. The method of claim 25 wherein the at least one the message broker is configured to operate in a transport control layer within the plurality of communications networks and is configured to relay or screen the one or more messages through the transport control layer between at least one of: the plurality of system entities located in 10 at least one service control layer of the at least one communications network and the plurality of system entities located in at least one transport layer of the at least one communications network.

42. The method of claim 41 further comprising the step of exchanging the one or more messages with at least one transport association controller in the transport control 15 layer of the at least one communications network.

43. The method of claim 25 wherein the at least one message broker is further configured to operate in at least one of: a services layer, a service control layer, and a transport control layer wherein the at least one message broker provides for inter-message distributions across a plurality of communications domains.

20 44. The method of claim 43 further comprising the step of providing message translation for the one or messages communicated between the plurality of communications domains.

45. The method of claim 44 wherein the message translation comprises message translation schemes which are modular and configurable from a provisioning management system.

46. The method of claim 39 wherein further comprising the step of providing 5 authentication and authorization for the one or more messages exchanged between the plurality of communications domains.

47. The method of claim 39 further comprising the step of providing message tunneling for the one or more messages exchanged between the plurality of communications domains.

10 48. The method of claim 39 further comprising the step of providing non-repudiation of message relay and screening in order to provide proof of message exchange transaction.